GOES-16 Post-Launch Product Testing for ABI Level 2 Algorithms

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L2 Product Validation & Updates

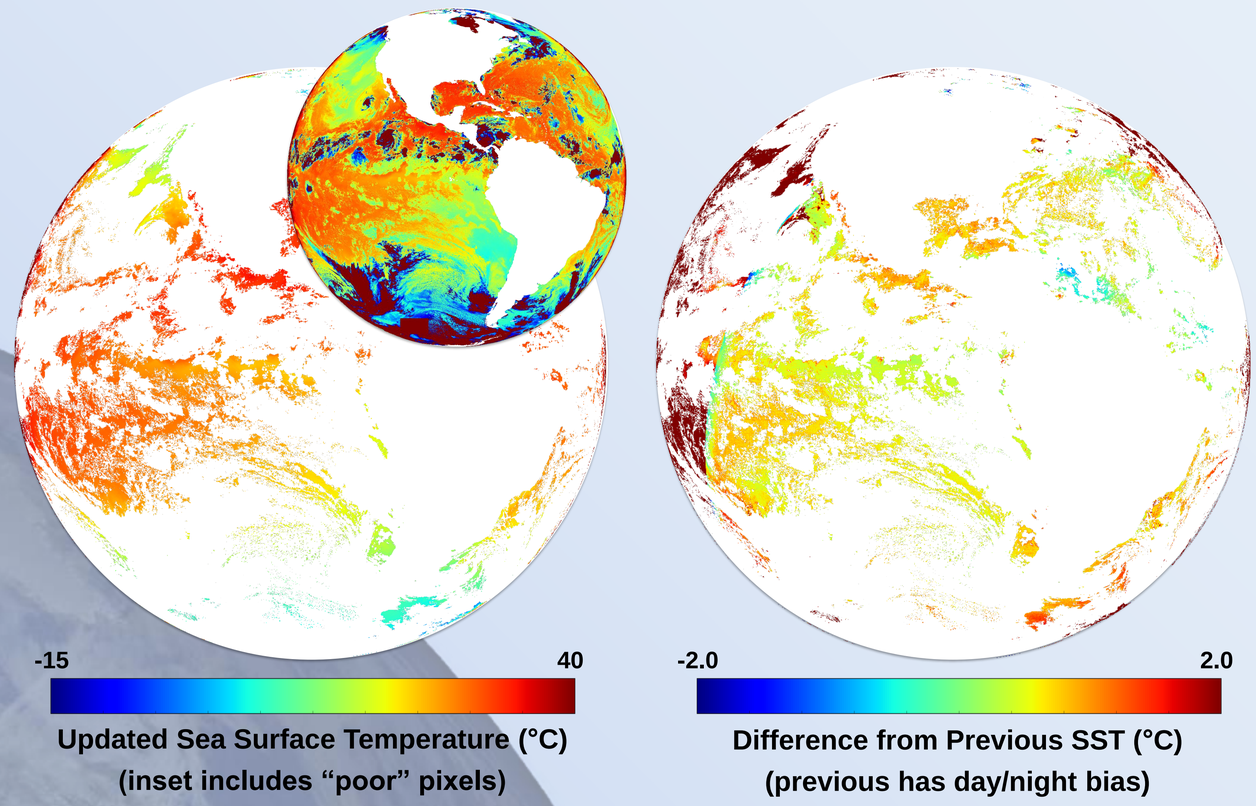
- Algorithm Working Group (AWG) teams are analyzing L2 products and diagnostic data to assess criteria for maturity levels: Beta, Provisional, Fully-Validated.
- Issues are being tracked with Algorithm Defect Reports (ADRs), managed by the Product Readiness and Operations (PRO) team.
- ADRs are investigated with live data in the Development Environment (DE) and offline using Algorithm WorkBench (AWB) framework at AER and NOAA STAR.
- Algorithm Updates may involve configuration parameters, source code changes, product formatting, or service configurations.
- This poster describes a case study for an update to the Sea Surface Temperature (SST) algorithm that includes a combination of configuration and code changes.

Working with GOES-16 Products

- GOES-16 outputs are formatted into NetCDF files in Product Distribution (PD).
- For algorithm analysis, PD NetCDF files are copied from the 2-day store (2DS) to be converted into the GOES-R Data Model Interface (DMI) format.
- PD-to-DMI Converters use mappings shown below to extract datasets from 2DS products to convert the data types into the DMI format & naming conventions.

GOES-R PD NetCDF	GOES-R DMI	Converter	Data Type
DR_ABI-L2-ACM*-*_G16_s*_e*_c*.nc	DMI_ACM::BinaryCloudMask	POD	int8
DR_I_AN*-MoisturePro_s*_e*_c*.nc	DMI_AncillaryProcessing::NWP_MoistureProfile	Profile	float32
DR_I_ABI-L2-VAA*-*_G16_s*_e*_c*.nc	DMI_AVA::AshRetrievalPQI	Bitset	bitset-11

GOES-R PD NetCDF → PD-to-DMI Converter → GOES-R DMI Imagery, Blob → Used in GOES-R DE and Algorithm WorkBench for Validation, Analysis, Updates

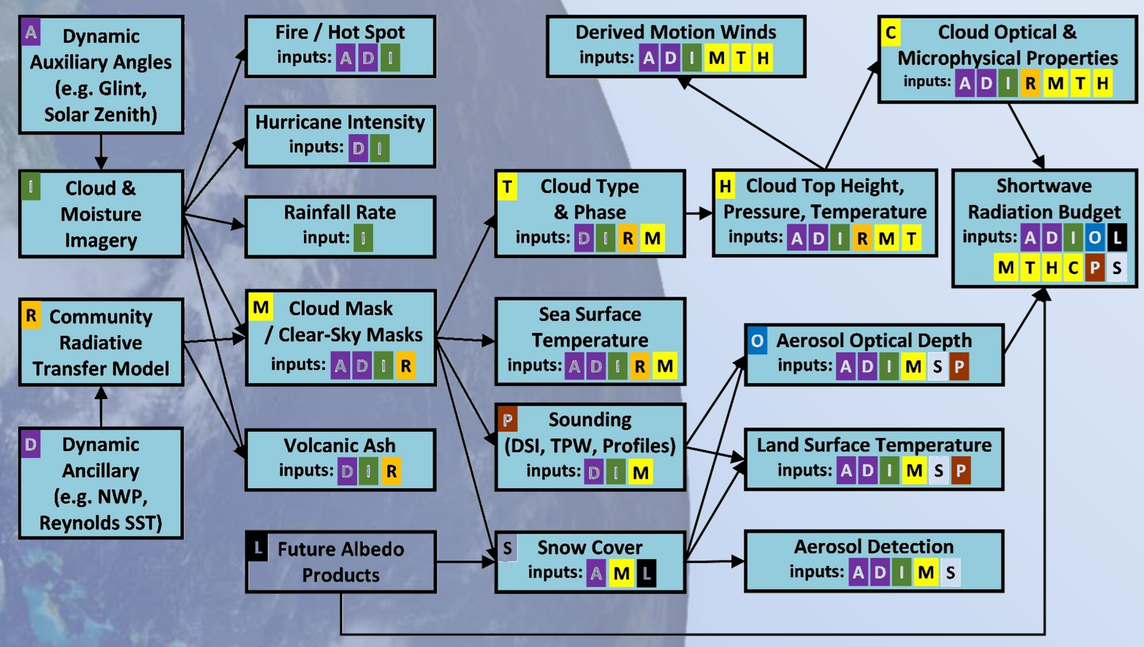


Configuration & Code Updates

- For a specific example, the Sea Surface Temperature Algorithm was modified to use a regression equation with better performance for GOES-16.
- This update required a code update for the modified equation with new inputs, a parameter update for the new coefficients, and a configuration update to subscribe to the newly-required ABI Bands 11 and 13.
- The images to the right show the updated SST product.
- In general, algorithm updates affect downstream products, as shown in the precedence diagram to the right.

Code Update	Regression Equation: Day: 2-band (14,15), 4 terms Night: 3-band (7,14,15), 6 terms	Regression Equation: Day+Night, 13 terms 4-band (11,13,14,15)
Parameters Update	SST Switch: "Hybrid SST" Regression Coefficients from simulated ABI testing	SST Switch: "Regression" Regression Coefficients from GOES-16 testing
Configuration Update	Data Fabric Subscription for: ABI Band 7, 14, 15 (3.9, 11.2, 12.3 μm)	Data Subscription for: ABI Band 11, 13, 14, 15 (8.6, 10.4, 11.2, 12.3 μm)

Algorithm Precedence



- Each box generates a set of L2 products using the inputs generated upstream (as indicated with color-coded markers).
- For clarity, arrows only show the latest precedent inputs for each box.

Upcoming Product Testing

- Nearly all L2 products are approved for Beta Maturity.
- Algorithm updates continue in preparation for the Provisional-level Validation Reviews later this year, with the Fully-Validated Reviews occurring in 2018.
- Important updates for Derived Motion Winds and Volcanic Ash are being worked now, with other updates being applied across the rest of the products.

The GOES-16 data posted on this page are preliminary, non-operational data and are undergoing testing.
Users bear all responsibility for inspecting the data prior to use and for the manner in which the data are utilized.

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